

RECEIVED
CENTRAL FAX CENTER

DEC 19 2005

2

REMARKS/ARGUMENTS

In the Office action dated September 28, 2005, claims 1 – 25 were rejected. Applicant respectfully requests further examination and reconsideration in view of the remarks set forth fully below.

I. Claim Rejections under 35 U.S.C. § 102

Claims 1, 2, 4, 9 – 12, 14, and 19 were rejected under 35 U.S.C. 102(e) as being anticipated by Guo et al. (U.S. Patent Publication No. 2002/0054405, hereinafter Guo).

Independent Claim 1

Claim 1 of the present invention recites:

“A method for protecting a label switched path (LSP) between two label switch routers (LSRs) in a ring network that utilizes a label switching protocol to communicate packets of information, wherein each LSR in said ring network is connected to a right side neighbor LSR and a left side neighbor LSR by respective links, said method comprising:

identifying a working LSP between first and second neighbor LSRs in said ring network, said working LSP having a first direction around said ring network;

establishing *a protection LSP* between said first and second neighbor LSRs *for communicating packets between said first and second neighbor LSRs in the event of a failure* of the link that is utilized by said working LSP, said protection LSP utilizing said ring network and having an opposite direction to said first direction; and

switching packets from said working LSP to said protection LSP in response to a failure of said link that is utilized by said working LSP.” (emphasis added)

Claim 1 was rejected as being anticipated by Guo. Applicant asserts that claim 1 is not anticipated by Guo because: 1) Guo does not disclose a “protection LSP” as recited in claim 1 and 2) Guo does not disclose “switching packets from

said working LSP to said protection LSP in response to a failure” as recited in claim 1.

Guo does not disclose a protection LSP

Guo does not disclose a protection label switched path (LSP) between two neighbor label switch routers (LSRs), where the protection LSP is “for communicating packets between said first and second neighbor LSRs in the event of a failure of the link that is utilized by said working LSP.”

An LSP established to protect another LSP in the event of a failure must be able to communicate traffic from the same source LSR to the same destination LSR. Accordingly, if working LSP A/B communicates traffic from LSR A to LSR B, then protection LSP A/B must also be able to communicate traffic from LSR A to LSR B, albeit via an alternate path. Working LSP A/B is not protected by an LSP that only communicates traffic from LSR B to LSR A (i.e., LSP B/A).

Guo discloses a series of uni-directional optical paths that link network nodes into a ring. The uni-directional optical paths that communicate traffic in the clockwise direction are optical paths 14, 16, 18, 20, 22, and 24 and the uni-directional optical paths that communicate traffic in the counter-clockwise direction are optical paths 26, 28, 30, 32, 34, and 36. As disclosed by Guo, the optical paths between any two nodes consist of two uni-directional optical paths that communicate traffic in opposite directions. For example, optical paths 14 and 36 connect nodes 2 and 4, with optical path 14 communicating traffic from node 2 to node 4 in the clockwise direction and optical path 36 communicating traffic from node 4 to node 2 in the counter-clockwise direction.

A protection LSP that protects optical path 14 of Guo must communicate traffic from node 2 to node 4. That is, the protection LSP for optical path 14 is an LSP that communicates traffic from node 2 to node 4. Nowhere does Guo disclose an LSP that communicates traffic from node 2 to node 4 as a means for protecting optical path 14. Guo discloses optical path 36 between node 2 and node 4, however, optical path 36 is a uni-directional optical path that communicates traffic from node 4 to node 2 but not from node 2 to node 4.

Because optical path 36 does not communicate traffic from node 2 to node 4, it is not a protection LSP for optical path 14. Guo also discloses optical paths 26, 28, 30, 32, and 34 that exist between node 2 to node 4 and communicate traffic in the counter-clockwise direction. Although optical paths 26, 28, 30, 32, and 34 communicate traffic in the counter-clockwise direction, optical paths 26, 28, 30, 32, and 34 are simply a collection of single-hop optical paths that connect neighbor nodes. Nowhere does Guo disclose the establishment of an LSP between node 2 and node 4 in the counter-clockwise direction. Further, nowhere does Guo disclose the establishment of an LSP between node 2 and node 4 in the counter-clockwise direction as a means for protecting optical path 14. Establishing an LSP between node 2 and node 4 in the counter-clockwise direction requires a distinct LSP setup operation which is not disclosed by Guo. The mere existence of optical paths 26, 28, 30, 32, and 34 between node 2 and node 4 does not disclose an LSP between node 2 and node 4. Guo never mentions the establishment of an LSP between node 2 and node 4 in the counter-clockwise direction or the concept of a protection LSP. Although the above-provided remarks are focused on communications between nodes 2 and 4 in Guo, the same remarks apply to any two neighbor nodes disclosed by Guo. Because Guo does not disclose protection LSPs for communicating packets between neighbor LSRs in the event of a failure, Claim 1 is not anticipated by Guo.

Guo does not disclose "switching packets..."

As described above, Guo does not disclose the concept of a protection LSP as a means for protecting a link between two neighbor nodes. Because Guo does not disclose protection LSPs, it follows that there would be no "switching packets from said working LSP to said protection LSP in response to a failure of the link that is utilized by said working LSP" as recited in claim 1. Applicant has reviewed Guo and has found no disclosure of "switching packets..." as recited in claim 1.

The Office action specifically cites paragraph [0031] of Guo as disclosing the claim 1 limitation of "switching packets between said first and second

neighbor LSRs in the event of a failure of the link that is utilized by said working LSP.” Applicant has reviewed paragraph [0031] in detail and finds no reference to “switching packets...” as recited in claim 1. In paragraph [0031], Guo discloses an operation that takes place if no label can be assigned during optical path setup. The operation involves transmitting an error message (RESV-Err), which “triggers the tearing down of labels already allocated, thereby causing the session to fail.” Paragraph [0031] also discloses a “RESV tear message,” which deletes the reserved labels for optical links in both forward and backward directions” and a “path tear message,” which deletes the path state as well as dependent reservation state along the way. While paragraph [0031] of Guo discloses protocols related to unsuccessful optical path setup, nowhere does this paragraph disclose the switching of packets from a working LSP to a protection LSP in response to a failure as recited in claim 1.

Claims 2 and 4

Claims 2 and 4 include limitations related to switching between a working LSP and a protection LSP. Because Guo does not disclose protection LSPs, it follows that there would be no switching between a working LSP and a protection LSP in the event of a failure of the link that is utilized by the working LSP as recited in claim 1. Applicant has reviewed Guo and has found no disclosure of the limitations of claims 2 and 4.

Claims 9 and 10

Claims 9 and 10 are dependent on claim 1. Applicant asserts that these claims are allowable at least based on an allowable claim 1.

II. Claim Rejections under 35 U.S.C. § 103

Claims 3, 5 – 8, 13, 15 – 18, and 20 – 25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Guo in view of Chuah et al. (U.S. Patent number 6,408,001, hereinafter Chuah).

Claim 5

Claim 5 recites:

*“The method of claim 1 wherein switching packets from said working LSP to said protection LSP includes **adjusting time-to-live (TTL) values** of said packets **to account for the number of LSRs that are along said protection LSP.**”*

The Office action states that Chuah teaches the limitations of claim 5. The Office action goes on to conclude that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Guo and Chuah. The only support for the conclusion is the statement “[t]he motivation would have to provide quality of service in bi-directional Multi Protocol Label Switch (MPLS) network.”

The Office action has not presented the required suggestion or motivation to modify or combine the prior art references

Applicant asserts that a *prima facie* case of obviousness has not been established with regard to claim 5 because the Office action has not presented some suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify one of the references or to combine the reference teachings. In particular, Applicant asserts that the Office action does not identify a suggestion or motivation either in Guo, Chuah, or in the knowledge generally available to one of ordinary skill in the art, to combine Guo with Chuah. The only support provided for the suggested combination is the general motivation “to provide quality of service in bi-directional Multi Protocol Label Switch (MPLS) network.” Applicant points out that “[t]he examiner bears the initial burden of factually supporting any *prima*

facie conclusion of obviousness.” [M.P.E.P. 2142] Applicant asserts that the above-identified general motivation does not provide the requisite factual basis to support a *prima facie* case of obviousness.

Further, as stated in *Ex parte Clapp*, 227 USPQ 972, (Bd. Pat. App. & Inter. 1985) “[t]o support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” The Examiner has not identified where the prior art references expressly or impliedly suggest the claimed invention nor has the Examiner presented a convincing line of reasoning as to why an artisan would have found the claimed invention obvious. As stated, above, *the only support* provided for the Examiner’s suggested combination is the general motivation “to provide quality of service in bi-directional Multi Protocol Label Switch (MPLS) network.” From the statement provided in the Office action, the basis for the rejection seems to be that the general motivation to provide quality of service in MPLS networks suggests combining Guo with Chuah. Applicant asserts that the general motivation does not suggest or motivate combining Guo with Chuah. In support of this assertion, Applicant points out that the cited general motivation to provide quality of service in MPLS networks does not suggest any particular combination of prior art references. Specifically, the general motivation does not say anything about how quality of service should be incorporated into a ring-based MPLS network. The logic relied upon in the Office action is equivalent to concluding that the cited general motivation provides the motivation to combine any related prior art reference with Guo. In sum, the Office action has not provided a sufficient factual basis to support the combining of Guo with Chuah and therefore, the burden of establishing a *prima facie* case of obviousness has not been met.

With the rejection of Claim 5, the Office action has failed to provide the requisite factual basis and failed to establish the requisite motivation to support the conclusion that it would have been obvious to one skilled in the art to combine

Guo with Chuah. The Examiner is requested to cite art supporting his assertions. Alternatively, if the Examiner is aware of facts within his personal knowledge that provide the requisite factual basis and establish the requisite motivation to support his conclusion that it would have been obvious to one skilled in the art to combine Guo with Chuah, the Examiner is requested to provide an affidavit in accordance with 37 C.F.R. 1.104(d)(2).

The above-provided remarks apply also to claims 3, 6 – 8, 13, 15 – 18, and 20 – 25.

Even if impermissibly combined, the combined teachings do not teach every claim limitation

To establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. [MPEP 2143.03] In the Office action, Chuah is cited as teaching the claim limitation of “wherein switching packets from said working LSP to said protection LSP includes adjusting time-to-live (TTL) values of said packets to account for the number of LSRs that are along said protection LSP.” The Office action specifically cites Fig. 6, reference number 640 and col. 6, lines 43 – 67 and col. 7, lines 6 – 14 of Chuah as teaching the claim limitation. Applicant respectfully asserts that the cited references to Chuah simply describe MPLS and the TTL field as they are known in the prior art. The TTL field is identified by the reference number 640 in Fig. 6 and its prior art use is accurately described in Chuah as “delineat[ing] the maximum number of hops a packet is allowed in the network while being transported.” (col. 7, lines 12 – 14) While this statement correctly describes that TTL values delineate the maximum number of hops that a packet is allowed to take along an LSP, it says nothing about how a TTL value is handled when a labeled packet is switched from a working LSP that has a first number hops to a protection LSP that has a different number hops. If the number of hops between the working LSP and the protection LSP is different, packets re-directed to the protection LSP may have their shim header prematurely “popped”. (see, for example, paragraph [0013] of Applicant's specification) This is a

problem that is specifically addressed by claim 5. In sum, while Chuah teaches MPLS and the TTL field as they are known in the prior art, nowhere does Chuah teach or suggest a process in which “switching packets from said working LSP to said protection LSP includes adjusting time-to-live (TTL) values of said packets to account for the number of LSRs that are along said protection LSP.”

Claims 7 and 8

Claim 7 recites the limitation “using TTL values from packets that have traversed said protection LSP to generate TTL values for said packets that are switched back to said working LSP from said protection LSP” and claim 8 recites the limitation “using TTL values from packets that have traversed said protection LSP to generate TTL values for said packets that are switched to said next hop working LSP from said protection LSP.” As described above, Chuah simply describes MPLS and the TTL field as they are known in the prior art. While Chuah correctly describes that TTL values delineate the maximum number of hops that a packet is allowed to take along an LSP, Chuah says nothing about how a TTL value is handled when a labeled packet is switched from a working LSP to a protection LSP as recited in claims 7 and 8. In sum, while Chuah teaches MPLS and the TTL field as they are known in the prior art, nowhere does Chuah teach or suggest the use of TTL values as recited in claims 7 and 8.

III. Claim 11

Claim 11 has similar limitations to claim 1. Because of the similarities between claims 11 and 1, Applicant asserts that the remarks provided above with regard to claim 1 apply also to claim 11.

Claims 12 – 19 are dependent on claim 11. Applicant asserts that these claims are allowable based on an allowable claim 11. Further, because of similarities between dependent claims, the remarks provided above are related and apply as follows: claims 2 and 12, claims 3 and 13, claims 4 and 14, claims 5 and 15, claims 6 and 16, claims 7 and 17, and claims 8 and 18.

10

IV. Claim 20

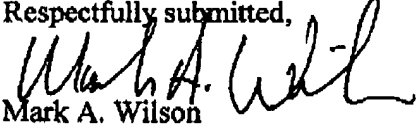
Claim 20 has similar limitations to claims 1 and 5. Because of the similarities between claims 11 and claims 1 and 5, Applicant asserts that the remarks provided above with regard to claims 1 and 5 apply also to claim 20.

Claims 21 – 25 are dependent on claim 20. Applicant asserts that these claims are allowable based on an allowable claim 20. Further, because of similarities between dependent claims, the remarks provided above are related and apply as follows: claims 7 and 22, claims 8 and 23, claims 4 and 14, claims 5 and 15, claims 6 and 16, claims 7 and 17, and claims 8 and 18.

Applicant respectfully requests reconsideration of the claims in view of the foregoing remarks. A notice of allowance is earnestly solicited.

Date: December 19, 2005

Respectfully submitted,


Mark A. Wilson
Reg. No: 43,994

Wilson & Ham
PMB: 348
2530 Berryessa Road
San Jose, CA 95132
Phone: (925) 249-1300
Fax: (925) 249-0111